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Listing of Claims

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This listing of claims will replace all prior versions and listings of claims in the

application:

In the claims

Claims 1-15. (**Canceled**)

16. (**Previously presented**) A method of making a microsphere array comprising:

    a) contacting a substrate with a surface comprising discrete sites at a density of at least

    100 sites per 1 mm^2, with a solution comprising a population of different particles,

    wherein said particles do not comprise an optical signature; and

    b) applying energy to said substrate or said solution, or both, such that at least a

    subpopulation of said different particles randomly associate onto sites.

17. (**Original**) A method according to claim 16 wherein said discrete sites comprise wells.

18. (**Original**) A method according to claim 16 wherein said energy is in the form of agitation.

19. (**Previously presented**) A method according to claim 16, wherein said energy is dipping said

substrate into said particles.

20. (**Previously presented**) A method according to claim 19, wherein said substrate is a fiber

optic bundle.

Claims 21-44. (**Canceled**)

45. (**Previously presented**) A method for decoding an array composition comprising:

    a) providing an array comprising:

        i) substrate with a surface comprising discrete sites at a density of at least 100

        sites per 1 mm^2, wherein said sites are wells; and

        ii) a population of microspheres randomly distributed on said sites, wherein said

        population comprises at least a first and a second subpopulation each

        comprising a different bioactive agent; and

b) decoding a location of said bioactive agent by correlating said bioactive agent with

said location, whereby said decoding comprises contacting said array with at least first

and second different decoder binding ligands, whereby said first and second decoder

binding ligands bind to first and second bioactive agents, respectively, to thereby

identify a location of said first and second bioactive agents to thereby decode said array.

46. (**Previously presented**) The method according to claim 45, wherein said first and second

decoder binding ligand comprise first and second different labels.

Claims 47-51. (**Canceled**)

52. (**Previously presented**) A method for decoding an array composition comprising:

    a) providing an array comprising:

        i) substrate with a surface comprising discrete sites at a density of at least 100

        sites per 1 mm^2, wherein said sites are wells; and

        ii) a population of microspheres randomly distributed on said sites, wherein said

        population comprises at least a first and a second subpopulation each

        comprising:

            (a) a different bioactive agent; and

            (b) a different identifier binding ligand; and

    b) decoding a location of said bioactive agent by correlating said bioactive agent with

    said location.

53. (**Previously presented**) The method according to claim 52, whereby said decoding

comprises contacting said array with at least first and second different decoder binding ligands,

whereby said first and second decoder binding ligands bind to said first and second identifier

binding ligand, whereby said first and second identifier binding ligand identifies said first and

second bioactive agent, respectively, to thereby identify a location of said first and second

bioactive agents to thereby decode said array.

54. (**Canceled**)

55. (**Previously presented**) A method of determining the presence of a target analyte in a sample comprising:

    a) contacting said sample with an array comprising:

        i) substrate with a surface comprising discrete sites at a density of at least 100 sites per 1 mm^2, wherein said sites are wells; and

        ii) a population of microspheres randomly distributed on said sites, wherein said population comprises at least a first and a second subpopulation each comprising a different bioactive agent;

    b) determining the presence or absence of said target analyte; and

    c) decoding a location of said bioactive agent by correlating said bioactive agent with said location whereby said decoding comprises contacting said array with at least first and second different decoder binding ligands, whereby said first and second decoder binding ligands bind to first and second bioactive agents, respectively, to thereby identify a location of said first and second bioactive agents to thereby decode said array.

56-57 (**Canceled**)

58. (**Previously presented**) A method of determining the presence of a target analyte in a sample comprising:

    a) contacting said sample with an array comprising:

        i) substrate with a surface comprising discrete sites at a density of at least 100 sites per 1 mm^2, wherein said sites are wells; and

        ii) a population of microspheres randomly distributed on said sites, wherein said population comprises at least a first and a second subpopulation each comprising:

            (a) a different bioactive agent; and

(b) a different identifier binding ligand;

b) determining the presence or absence of said target analyte; and

c) decoding a location of said bioactive agent by correlating said bioactive agent with said location.

59. (**Previously presented**) The method according to claim 58, whereby said decoding comprises contacting said array with at least first and second different decoder binding ligands, whereby said first and second decoder binding ligands bind to a first and second identifier binding ligand, whereby said first and second identifier binding ligand identifies said first and second bioactive agent, respectively, to thereby identify a location of said first and second bioactive agents to thereby decode said array.

60. (**Currently amended**) The method according to claim 45, 46, 52, [[54,]] 55, 58, or 59, wherein said bioactive agents are nucleic acids.

61. (**Previously presented**) The method according to claim 60, wherein said nucleic acids are DNA.

62. (**Previously presented**) The method according to claim 60, wherein said nucleic acids are single stranded nucleic acids.

63. (**Previously presented**) The method according to claim 60, wherein said nucleic acids are double stranded nucleic acids.

64. (**Currently amended**) The method according to claim 45, 46, 52,[[54,]] 55, 58, or 59, wherein said bioactive agents are proteins.

65. (**Currently amended**) The method according to claim 45, 46, 52, 53,[[54,]] 55, 56, 57, 58, or 59, wherein said substrate is a fiber optic bundle.